UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/917,376	07/28/2001	Shi-You Ding	NREL 01-36	9956

30955 7590 05/18/2005

LATHROP & GAGE LC
4845 PEARL EAST CIRCLE
SUITE 300
BOULDER, CO 80301

EXAMINER	
SWOPE, SHERIDAN	

ART UNIT	PAPER NUMBER
1652	

DATE MAILED: 05/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/917,376	DING ET AL.	
	Examiner	Art Unit	
	Sheridan L. Swope	1652	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 March 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,4-12,14,15,28,30-36 and 43* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1, 2, 4-12,14,15,28,30-36 and 43* is/are rejected.

7)☒ Claim(s) *1 15* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

RD

DETAILED ACTION

Applicant's amendment and response of March 03, 2005, in response to the RCE/First Action on the Merits of June 16, 2004, are acknowledged. Claims 1, 2, 4-12, 14, 15, 28, 30-36, and 43 are pending. It is acknowledged that applicants have amended Claims 1, 7, 10, and 11. Claims 1, 2, 4-12, 14, 15, 28, 30-36, and 43, are hereby reconsidered.

Specification-Objections

The specification is objected to for the following reasons.

(A) The specification is objected to because the disclosure for the structure of the AviIII polypeptide is unclear for the following reasons.

(i) The specification on page 5, paragraph 5, states: "In Table 1, the abbreviations are as follows: CD, catalytic domain; CBD_II, carbohydrate binding domain type II; CBD_III, carbohydrate binding domain type III, and FN-III, fibronectin domain type III."

However, Table 1 has no CBD_II domain or FN-III domain listed. Thus, the structure of AviIII is unclear.

(ii) The specification on page 16, paragraph 4 to page 17, paragraph 1, states: "The predicted amino acid sequence of AviIII (SEQ ID NO: 1) has an organization characteristic of a cellulase enzyme. ... In particular, AviIII includes a carbohydrate binding domain type III (CBDIII) (amino acids from about A35 to about A187), a GH74 catalytic domain (amino acids from about N231 to about P870), and a CBDII (amino acids from about G1021 to about S1121)." In addition, the specification on page 18, paragraph 2, states: "As listed and described in Tables 3 and 2, the isolated AviIII polypeptide includes an N-terminal hydrophobic region that functions as a signal peptide, having an amino acid sequence that begins with Metl and extends to about

A34; a carbohydrate binding domain having sequence similarity to such type III domains that begins with about A35 and extends to about A187, a catalytic domain having significant sequence similarity to a GH74 family domain that begins with about N231 and extends to about P870, a fibronectin type III domain that begins with about D901 and extends to about G985, a carbohydrate binding domain type III region that begins with about G1021 and extends to about S1121."

However, for the polypeptide of SEQ ID NO: 1, as set forth in the sequence listing, residue 35 is not A, residue 187 is not A, residue 231 is not N, residue 870 is not P and, since SEQ ID NO: 1 has only 957 residues, there is no residue 985, 1021, or 1121. Thus, the structure of AviIII is unclear.

(iii) Original Claim 6, states:

"Claim 6. The composition of claim 3 wherein the GH74 catalytic domain is further defined as the sequence of SEQ ID NO: 3. "

As set forth by the sequence listing, SEQ ID NO: 3 consists of residues A47 – G786 of SEQ ID NO: 1. Thus, in regards to the sequence and structure for the GH74 catalytic domain, the disclosure of the original claims does not agree with the disclosure on pages 17 and 18, as described above in (ii).

(iv) Original Claims 7 and 8, state:

"Claim 7. The composition of claim 4 wherein the carbohydrate binding domain (CBD) III is further defined as the sequence of SEQ ID NO: 4."

"Claim 8. The composition of claim 4 wherein the carbohydrate-binding domain (CBD) III is further defined as comprising the sequence of SEQ ID NO: 5."

As set forth by the sequence listing, SEQ ID NO: 4 consists of residues V869 – X957 of SEQ ID NO: 1, while SEQ ID NO: 5 consists of residues V869 – Q956 of SEQ ID NO: 1. Thus, in regards to the sequence and structure for the CBD III, the disclosure of the original claims does not agree with the disclosure on pages 17 and 18, as described above in (ii).

Therefore the structures for the AviIII polypeptide as well as the GH74 catalytic domain and the CBD III are indefinite.

(B) The specification is objected to because the definition for "substrate targeting moiety" is unclear. The specification on page 13, paragraph 2, provides the following definition: ""Substrate targeting moiety" refers to any signal on a substrate, either naturally occurring or genetically engineered, used to target any AviIII polypeptide or fragment thereof to a substrate. Such targeting moieties include ligands that bind to a substrate structure." Said definition is unclear because the phrase "any signal on a substrate" indicates that the moiety is derived from the structure of the substrate, while the phrases "used to target ...to a substrate" and "include ligands that bind to a substrate" indicate that the moiety is not derived from the structure of the substrate, but is a distinct structure that binds to the substrate. For this reason, the definition for "Substrate targeting moiety" is indefinite.

Claims-Objections

Claim 1 is objected to for, in line 6, using the abbreviation AviIII_Aace, which does not agree with the figure in Claim 1.

Claim 15 is objected to for having two periods (..).

Claim Rejections - 35 USC § 112-Second Paragraph

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Rejection of Claims 1, 2, 4-11, 14, 15 under 35 USC 112, second paragraph, as being indefinite for the reasons described in the prior action, is maintained. In support of their request that said rejection be withdrawn, Applicants provide the following arguments. Any definition of AviIII polypeptides as only having either substrate binding activity or cellulase activity is unduly limiting. The specification provides numerous ways of modifying SEQ ID NO: 1 to prepare AviIII polypeptides with a variety of activities, other than substrate binding activity or cellulase activity.

These arguments are not found to be persuasive for the following reasons. The instant rejection is not based on a requirement that the claims be amended to limit the scope to AviIII polypeptides having either substrate binding activity or cellulase activity, but is based on the fact that the activities are being recited are unclear. The definition of an AviIII peptide, as provided on page 18 of the specification, states:

> "AviIII polypeptides of the invention include isolated polypeptides having an amino acid sequence as shown below in Example 1; Table 1 and in SEQID NO: 1, as well as variants and derivatives, including variants, having substantial identity to the amino acid sequence of SEQ ID NO:1 and that retain any of the functional activities of AviIII. AviIII polypeptide activity can be determined, for example, by subjecting the variant, derivative, or fragment to a substrate binding assay or a cellulase activity."

Said definition fails to provide <u>any</u> structural or functional limitations or definitions of the polypeptides encompassed. Therefore, said definition is indefinite and a person of ordinary skill in the art would not know the meets and bound of the recited invention.

Claims 1, 2, 4-11, 14, 15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 1 recites an "AviIII peptide comprising a catalytic

domain of a glycosyl hydrolase family 74 (GH74_Ace) enzyme having at least 70% identity to SEQ ID NO: 1...". As described above under "Specification-Objections", the specification fails to clearly disclose the structure of the GH74 domain of the AviIII set forth by SEQ ID NO: 1. In addition, the specification fails to define the structure of any GH74 catalytic domain. Therefore, Claim 1 is rendered indefinite, as a person of ordinary skill in the art would not know the metes and bounds for the invention of said claim. Claims 2, 4-11, 14, 15, as dependent upon Claim 1 and reciting the same limitation, are rejected under 35 U.S.C. 112, second paragraph, for the same reasons.

Claims 1, 2, 4-11, 14, 15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 1 recites an "AviIII peptide comprising ...a carbohydrate binding domain (CBD) III". As described above under "Specification-Objections", the specification fails to disclose the structure of the CBD III of the AviIII set forth by SEQ ID NO: 1. In addition, the specification fails to define the structure of any CBD III. Therefore, Claim 1 is rendered indefinite, as a person of ordinary skill in the art would not know the metes and bounds for the invention of said claim. Claims 2, 4-12, 14, 15, as dependent upon Claim 1 and reciting the same limitation, are rejected under 35 U.S.C. 112, second paragraph, for the same reasons.

Claim 32 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 32 recites the limitation of "a substrate targeting moiety". The phrase "substrate targeting moiety" renders the claim indefinite for two reasons. First, as described

above under "Specification-Objections" (B) the definition for substrate targeting moiety provided on page 13 is indefinite. Second, the specification has failed to define what would or would not be considered a substrate. Therefore, one of skill in the art would not know the metes and bounds of the recited invention.

Claim Rejections - 35 USC § 112-First Paragraph

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

In this regard, the application disclosure and claims are compared per the factors indicated in the decision In re Wands 858 F.2d 731, 8 USPQ2nd 1400 (Fed. Cir, 1988). These factors are considered when determining whether there is sufficient evidence to support a description that a disclosure does not satisfy the enablement requirement and whether any necessary experimentation is undue. The factors include but are not limited to: (1) the nature of the invention; (2) the breath of the claims; (3) the predictability or unpredictability of the art; (4) the amount of direction or guidance presented; (5) the presence or absence of working examples; (6) the quantity of experimentation necessary; (7) the relative skill of those skilled in the art. Each factor is here addressed on the basis of a comparison of the disclosure, the claims, and the state of the prior art in the assessment of undue experimentation.

Enablement

Rejection of Claim 1, 2, 4-12, 14, 15, 28, 30-36, and 43 under 35 U.S.C. 112, first paragraph, for lack of enablement, for the reasons stated in the prior actions, is maintained. In

support of their request that said rejection be withdrawn, Applicants provide the following arguments, which are not found to be persuasive for the reasons provided.

(A) Those skilled in the art understand that, the unpredictability is mitigated by respecting the conserved residues, as recited in claim 1.

Reply: As described below under "Written Description", the recitation in Claim 1 of the limitation of specific residues to be conserved in the polypeptide of SEQ ID NO: 1 constitutes New Matter and therefore, cannot be entered into the instant specification. Even if said limitation were not new matter, since no specific activity or function is recited in Claim 1, a person of ordinary skill in the art would not be able to predict whether conservation of the starred (*) residues in Claim 1 is necessary or not necessary for the desired activity or function. Likewise, a person of ordinary skill in the art would not be able to predict whether conservation of the unstarred residues in Claim 1 is necessary or not necessary for the desired activity or function. Moreover, homology of SEQ ID NO: 1 with a single protein would not convince a person of ordinary skill in the art that conservation of identical residues is necessary for any specific function or that any non-identical residues can be mutated and still retain the function. The specification fails to provide any evidence that the identical residues must be conserved or that the non-identical residues can be mutated and still obtain any specific desired utility. Furthermore, it is impossible to predict which residues must be conserved in order to obtain the desired utility when no functional limitation has been recited in the claim. Applicants are reciting essentially any polypeptide with any or no activity.

(B) The Office mistakenly presumed that activity is required by the claims; however activity is not required. Even polypeptides that do not have the activity are useful in the types of

studies that are discussed on page 21, lines 1-11. Inactive polypeptides may also have uses as "unique epitopes" in producing antibodies and in the assays described on page 27 of the specification.

Reply: The specification at page 21, lines 1-11, merely describes techniques for altering a polypeptide sequence using methods such as site-directed mutagenesis, it does not teach one how to use the full scope of the polypeptides recited in Claim 1. It is acknowledged that enzymatically inactive polypeptides may have utility and page 27 describes the use of AviIII polypeptide for the preparation of antibodies. However, the specification fails to provide guidance on how to make and use all of the polypeptides recited in Claim 1 because (i) Claim 1 does not recite a specific use for any of the encompassed polypeptides; (ii) the definition for the function of AviIII polypeptides, as provided on page 18, of the specification is indefinite; and (iii) the specification fails to provide guidance as to which changes to SEQ ID NO: 1 can be tolerated or not tolerated and still obtain any specific desired activity. Also see the reply to (A) above.

(C) Regarding the items listed on pages 5-6 of the Action: (A)- activity is not required; (B) and (E)- guidance is given in claim 1, respecting the residues required to be conserved; (C)- activity is not required; (D)- a rational and predictable approach has been provided.

Reply: In order for a person of ordinary skill in the art to use the polypeptides encompassed by Claim 1, said polypeptides must have some utility. It is acknowledged that Applicant's are not limiting the scope of Claim 1 to polypeptides with cellulase activity. However, neither the claims nor the specification teach how to use the full scope of the

polypeptides recited in Claim 1. The "guidance" given is claim 1 is deemed to be New Matter and, furthermore, does not teach a skilled artisan how to use the full scope of the invention, as described above in (A).

(D) The examiner is unwilling to tolerate a reasonable amount of experimentation.

Reply: Guo et al, 2004 teach that the percentage of random single substitution mutations which inactivate a protein for the protein 3-methyladenine DNA glycosylase is 34% and that this number appears to be consistent with studies in other proteins. Guo et al, further show in Table 1 that the percentage of active mutants for multiple mutants appears to be exponentially related to said 34% by the simple formula $(0.66)^n$ x 100%, where n is the number of mutations introduced. Applying this estimate to the instant protein, 70% identity, as recited in Claim 1, allows up to 287 mutations within the 957 amino acids of SEQ ID NO: 1. Thus, only $(0.66)^{287}$ x 100% or 1.6 x 10^{-50} % of mutants having 70% identity would be active, i.e. 1 out of 1.6 x 10^{+50} mutants. Current techniques, such as high-throughput mutagenesis and screening techniques, would allow for finding a few active mutants within several hundred thousand or up to about a million inactive mutants, despite even this being an enormous quantity of experimentation that would take a very long time to accomplish. But finding a few active mutants within 1.6 x 10^{+50} or more inactive mutants would not be possible. While enablement is not precluded by the necessity for routine screening, if a large amount of screening is required, the specification must provide a reasonable amount of guidance with respect to the direction in which the experimentation should proceed. The instant specification fails to clearly define the functions for all of the polypeptides encompassed by Claim 1 or to provide guidance on how to make polypeptides having any specific desired utilities.

Written Description

Rejection of Claims 1, 2, 4-11, 14, 15, 28, and 30-36, and 43 under 35 U.S.C. 112, first paragraph, for insufficient Written Description, for the reasons stated in the prior action, is maintained. In support of their request that said rejection be withdrawn, Applicants provide the following arguments. "Applicants did disclose the broader genus that is recited in claim 1 and is shown to be in possession of what is claimed by the discussion of techniques for modifying protein structure, for example, in the passage from page 18, line 41 to page 21 at line 26 of the specification." This argument is not found to be persuasive. Said passage merely discusses well-known techniques for making variants of the polypeptide set forth by SEQ ID NO: 1. In the instant rejection, Claims 1, 2, 4-11, 14, 15, 28, and 30-36, and 43 are rejected under 35 U.S.C. 112, first paragraph, because the specification fails to describe the function for the full scope of the recited polypeptides.

Claims 1, 2, 4, 5, 7-11, 14, and 15 are further rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claims contains subject matter that was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention. Claim 1 introduces the limitation of an AviIII "...having a sequence identical to SEQ ID NO: 3 in each conserved position marked by an asterisk (*), as shown in the comparison to *Aspergillus aculeatus* Avicelase III(AviIII_Aace)". The original specification and claims fail to disclose said limitation of "identical to SEQ ID NO: 3 in each conserved position marked by an asterisk (*)". Thus, Claim 1 is rejected under 35 U.S.C. 112, first paragraph, for introducing New Matter. Claims 2, 4, 5, 7-11, 14, and 15, as dependent on

Claim 1 and reciting the same limitation, are rejected under 35 U.S.C. 112, first paragraph, for the same reasons.

Claims 10 and 11 are further rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claims contains subject matter that was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention. Claim 10 introduces the limitation of an AviIII "...wherein, the catalytic domain of GH74_Ace has at least 90% sequence identity with SEQ ID NO: 3". Claim 11 introduces the limitation of an AviIII "...wherein, the catalytic domain of GH74_Ace has at least 80% sequence identity with SEQ ID NO: 3". The original specification and claims fail to disclose said limitations of "at least 90% sequence identity with SEQ ID NO: 3" or "at least 80% sequence identity with SEQ ID NO: 3". Thus, Claims 10 and 11 are rejected under 35 U.S.C. 112, first paragraph, for introducing New Matter.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, 4-12, 14, 28, 36, and 43 are rejected under 35 U.S.C. 102(b) as being anticipated by Adney et al, 1994 or Tucker et al, 1989. Both of Adney et al and Tucker et al teach a composition comprising the culture supernatant of *Acidothermus cellulolyticus*. A person of ordinary skill in the art would believe, it is more likely than not, that said culture supernatant

contains the cellulase of SEQ ID NO: 1, which has a signal sequence and would be secreted from the cell. Adney et al (Example 3) and Tucker et al (Fig 1) also teach their composition comprising cellulose. Therefore, Claims 1, 2, 4-12, 14, 28, 36, and 43 are rejected under 35 U.S.C. 102(b) as being anticipated by Adney et al, 1994 or Tucker et al, 1989.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Rejection of Claims 1, 2, 4-12, 14, 15, and 28 under 35 U.S.C. 103(a) as being unpatentable over Mohagheghi et al, 1986 in view of Berghem et al, 1976 and Katz et al, 1968, for the reasons described in the First Action on the Merits, the Final Rejection, and the RCE First Action on the Merits, is maintained. In support of their request that said rejection be withdrawn, Applicants provide the following arguments, which are not found to be persuasive for the reasons provided.

(A) None of the cited references teaches or suggests the GH74 polypeptide that is claimed. This is an exoglucanase, not an endoglucanase, as isolated by Berghem et al. The combination would merely result in the isolation of an endoglucanase from *A. cellulolyticus*.

Reply: It is acknowledged that none of the cited references teach the polypeptide of SEQ ID NO: 1; said teaching is not require, as this is a rejection under 35 USC 103(a), not 102. The Final Rejection clearly states why the methods of Berghem et al would be useful to isolate the polypeptide of SEQ ID NO: 1. As stated therein:

> "To isolate their cellulose from T. viride, Berghem et al teach an enzymatic cellulase assay using acid-swollen Avicel, a microcrystalline cellulose, as a substrate (pg 623, parg 2, lines 1-9; Figs 1-6). This assay could also be used to isolate the cellulase of the instant application as evidenced by the fact that endoglycanases (Irwin et al, pg1710, parg 8, line 4; Table 1) as well exoglycanases (Avicelase II from the thermophilic bacteria Clostridium stercorarium; Bronnenmeier et al, 1991; pg 380 parg 5) can degrade Avicel. Therefore, Berghem et al teach an assay that would have utility in analyzing the activity of the cellulase of the instant application during biochemical purification. Berghem et al also teach that cellulases can be purfied using molecular sieve chromatography, chromatography on a dipolar adsorbent, isoelectric focusing, and affinity chromatography on an Avicel column (pg 622, parg 2-8). Affinity chromatography on an Avicel column would be a very powerful method for isolating the cellulase of the instant application as, it was well known in the art that exoglucanases bind to cellulose resin (Tan et al, 1986; pg 259, parg 3, lines 16-20; Fig 4). It would be obvious to a person of ordinary skill in the art to use the Avicel chromatography method as well as a combination of molecular sieve chromatography, chromatography on a dipolar adsorbent, and/or isoelectric focusing to isolate the cellulase of the instant application.

Applicants have failed to provide any evidence or reasoning as to why the protein of SEQ ID NO: 1 would not be isolated using said methods.

(B) The relevance of Bergheim [Berghem] et al and Tan et al to the instant rejection is unclear.

Reply: See (A).

(C) If the Office is asserting that the disclosed endoglucanase of the rejection was actually an exoglucanse, we disagree.

Reply: The Office has not asserted that the disclosed endoglucanase of the rejection was actually an exoglucanse. It is asserted that the methods used to isolate said endoglucanse would be useful for isolating the protein of SEQ ID NO: 1.

Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Adney et al, 1994 or Tucker et al, 1989 in view of Bjork et al, 1992. The teachings of Adney et al and Tucker et al

are described above. Neither Adney et al nor Tucker et al teach a composition comprising the protein of SEQ ID NO: 1 and a detergent. Bjork et al teach compositions comprising cellulases and detergents (Example 2). It would have been obvious to a person of ordinary skill in the art to adapt the composition of Adney et al or Tucker et al to include detergent. Motivation to do so is provided by the knowledge in the art that detergents and cellulase act in concert to clean fabric, as taught by Bjork et al (Abstract). The expectation of success is high as, compositions comprising a cellulase and a detergent are well known in the art. Therefore, Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Adney et al, 1994 or Tucker et al, 1989 in view of Bjork et al, 1992.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sheridan L. Swope whose telephone number is 571-272-0943. The examiner can normally be reached on M-F; 9:30-7 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ponnathapura Achutamurthy can be reached on 571-272-0928. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published application may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on the access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Sheridan Lee Swope, Ph.D.